

Notice of Allowability

Application No.

10/796,608

Applicant(s)

LEE ET AL.

Examiner

Art Unit

B. Clayton McCraw

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/9/2004.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>5/13/2005</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

REASONS FOR ALLOWANCE

1. Claims 1-9 are allowed.
2. The following is an examiner's statement of reasons for allowance: As per claim 1, the prior art fails to teach a process of the recovery of ethylene from feed gas comprising methane, ethylene, and hydrogen wherein the recovery comprises the steps of compressing and cooling the feed gas, fractionating a portion of the result in at least one demethanizer column, and recovering ethylene containing product from the bottom stream, wherein the cooling and demethanization of the feed gas comprises the steps of compressing a refrigerant comprising methane, ethane or ethylene, and propane or propylene, cooling and partially condensing the mixed refrigerant stream and separating a vapor refrigerant stream having an increased percentage of methane and a liquid refrigerant stream having an increased percentage of propylene and/or propane, cooling the vapor stream to produce an at least partially condensed vapor stream and cooling at least the vapor portion thereof to produce at least a subcooled liquid stream, flashing the subcooled liquid stream to a third pressure above the first pressure and at least partially vaporizing the resulting depressurized stream by indirect heat exchange with the demethanizer overhead, cooling the liquid stream of the partially condensed vapor stream, flashing them to the third pressure, and combining them with the at least partially vaporized stream either before and/ or after the at least partially vaporized stream undergoes further heating, to thereby form an at least partially vaporized combined stream,

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completely vaporizing the combined stream by indirect heat exchange thereof with a feed gas to provide refrigeration and cool the feed gas, and recycling the completely vaporized mixed refrigerant stream back into the original step.

Although Wei (2002/0174679) explicitly teach a process of the recovery of ethylene from feed gas comprising methane, ethylene, and hydrogen wherein the recovery comprises the steps of compressing and cooling the feed gas, fractionating a portion of the result in at least one demethanizer column, and recovering ethylene containing product from the bottom stream, wherein the cooling and demethanization of the feed gas comprises the steps of compressing a refrigerant comprising methane, ethane or ethylene, and propane or propylene, cooling and partially condensing the mixed refrigerant stream and separating a vapor refrigerant stream having an increased percentage of methane and a liquid refrigerant stream having an increased percentage of propylene and/or propane, cooling the vapor stream to produce an at least partially condensed vapor stream and cooling at least the vapor portion thereof to produce at least a subcooled liquid stream, flashing the subcooled liquid stream to a third pressure above the first pressure and at least partially vaporizing the resulting depressurized stream by indirect heat exchange with the demethanizer overhead, completely vaporizing the combined stream by indirect heat exchange thereof with a feed gas to provide refrigeration and cool the feed gas, and recycling the completely vaporized mixed refrigerant stream back into the original step, he fails to teach flashing them to the third pressure, and combining them with the at least partially vaporized stream either before and/ or after the at least partially vaporized

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stream undergoes further heating, to thereby form an at least partially vaporized combined stream.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Clayton McCraw whose telephone number is (571) 272-3665. The examiner can normally be reached on M-F 8:30AM-5:00PM.

5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'H. C. Jones', with a long horizontal line extending to the right.

BCM
3/31/2006

MELVIN JONES
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to be 'Melvin Jones', written in a cursive style.